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TITLE: Stress protein-peptide complexes as prophylactic and therapeutic vaccines against intracellular pathogens

CLAIMS:

1. A vaccine for administration to a mammal for inducing in the mammal a cytotoxic T cell response against a preselected intracellular pathogen, the vaccine comprising: (a) an immunogenic stress protein-peptide complex operative to initiate in said mammal a cytotoxic T cell response against said pathogen, said complex comprising, a peptide that is present in a eukaryotic cell infected with said pathogen but not present in said cell when said cell is not infected with said pathogen, complexed with a stress protein; and (b) a pharmaceutically acceptable carrier.
2. A vaccine for administration to a mammal for inducing in said mammal resistance to infection by a preselected intracellular pathogen, the vaccine comprising: (a) an immunogenic stress protein-peptide complex operative to initiate in said mammal, by means of a cytotoxic T cell response in said mammal, resistance to infection by said pathogen, said complex comprising, a peptide that is present in a eukaryotic cell infected with said pathogen but not present in said cell when said cell is not infected with said pathogen, complexed with a stress protein; and (b) a pharmaceutically acceptable carrier.
3. The composition of claim 1 or 2, wherein said stress protein is a member of the stress protein families selected from the group consisting of Hsp60, Hsp70, and Hsp90.
17. The composition of claim 1 or 2, wherein said peptide is non covalently complexed with said stress protein.
18. A method of inducing in a mammal a cytotoxic T cell response against a preselected intracellular pathogen that causes disease in said mammal, the method comprising: administering to said mammal a vaccine comprising, (a) an immunogenic stress protein-peptide complex operative to initiate in said mammal a cytotoxic T cell response against said pathogen and comprising, a peptide that is present in a eukaryotic cell infected with said pathogen but not present in said cell when said cell is not infected with said pathogen, complexed with a stress protein, and (b) a pharmaceutically acceptable carrier, in an amount sufficient to elicit in said mammal a cytotoxic T cell response against said pathogen.
19. A method of inducing in a mammal resistance to infection by a preselected intracellular pathogen that-causes disease in said mammal, the method comprising: administering to said mammal a vaccine comprising, (a) an immunogenic stress protein-peptide complex operative to initiate in said mammal cytotoxic T cell response against said pathogen and comprising, a peptide that is present in a eukaryotic cell infected with said pathogen but not present in said cell when said cell is not infected with said pathogen, complexed with a stress protein, and (b) a pharmaceutically acceptable carrier, in an amount sufficient to induce in said mammal, by means of the cytotoxic T cell response in said mammal, resistance to infection by said pathogen.
20. The method of claim 18 or 19, wherein said cytotoxic T cell response is mediated by the class I major histocompatibility complex.
21. The method of claim 18 or 19, wherein said stress protein is a member of the stress protein families selected from the group consisting of Hsp60, Hsp70, and Hsp90.
29. The method of claim 18 or 19, wherein said vaccine is administered to said mammal in an amount in

the range of about 0.1 to about 1000 micrograms of complex/kg body weight of mammal/immunization.

30. The method of claim 29, wherein said amount is in range of about 0.5 to about 100 micrograms of complex/kg body weight of mammal/immunization.

31. A method for preparing a vaccine for inducing in a mammal a cytotoxic T cell response against a preselected intracellular pathogen, the method comprising: (a) harvesting from a eukaryotic cell infected with said pathogen an immunogenic stress protein-peptide complex comprising, a peptide that is present in said cell infected with said pathogen but not present in said cell when said cell is not infected with said pathogen complexed with a stress protein, said complex, when administered to said mammal, being operative at initiating in said mammal a cytotoxic T cell response against said pathogen; and (b) combining said complex with a pharmaceutically acceptable carrier.

32. A method for preparing a vaccine for inducing in a mammal a cytotoxic T cell response against a preselected intracellular pathogen, the method comprising: (a) reconstituting in vitro, a peptide that is present in a eukaryotic cell infected with said pathogen but not present in said cell when said cell is not infected with said pathogen and a stress protein, thereby to generate a stress protein-peptide complex, which when administered to said mammal is operative to initiate a cytotoxic T cell response against said pathogen in said mammal; and (b) combining said complex with a pharmaceutically acceptable carrier.

33. The method of claim 32, wherein said stress protein is harvested in the presence of ATP prior to reconstitution.

35. The method of claim 31 or 32, wherein said stress protein is a member of the stress protein families selected from the group consisting of Hsp60, Hsp70 and Hsp90.